

ARTIFICIAL LIMBS AND AMPUTATIONS.

*Translated from Le Bulletin Général de Thérapeutique Médicale et Chirurgicale,
Paris, January 15, 1860.*

THE OLD SURGEONS in their art, always knew the end which they were pursuing, and also did not hesitate to introduce, in its development, everything which could conduce to that end. Accordingly, the investigation of remedies for mutilations figures in their works equally with those operations which have caused the loss of members, and that too at a time when mechanical knowledge could only furnish the crudest attempts for this branch of surgical therapeutics. Let us take, for example, the designs furnished us by Ambrose Paré, the most complete of all authors, in this respect. Now that the progress of the mechanic arts has furnished unquestionable aid, and can produce something better, all these notions have disappeared from our medical literature. Let a surgeon be consulted in regard to the means of concealing the simplest amputation, and he knows not what to advise, for he is ignorant both of the trials which have been made, and the state of art in what especially concerns this point. *The surgeon is forced to send his patients for advice to the makers of artificial limbs, and to give them up to their attempts.*

Still there is a gap which must be filled. Our readers will do us the justice to acknowledge that there is no journal which seizes, with more avidity, upon the opportunities of setting forth the real result of investigation, than the Bulletin Général. Since the late World's Exhibition, we have not failed to make mention of the most important objects which were exhibited by inventors. Besides, whenever a useful appliance has been produced, a description, accompanied with designs, has appeared in our pages, to serve as a history of the invention.

Investigation of the Value of Artificial Limbs.

LETTER FROM M. DEBOUT, SECRETARY OF THE SOCIÉTÉ DE CHIRURGIE, OF PARIS, TO M. MICHAUX, PROFESSOR OF SURGICAL CLINIQUE AT THE UNIVERSITY OF LOUVAIN. LEGS TAKING THE POINT OF SUPPORT AT THE PERINÆUM.

Translated from Le Bulletin Général de Thérapeutique, Paris, May 30, 1860.

AN important question, whose solution has been long sought, is that of the services which automatic appliances can render to those who have lost the inferior part of the limb. Despite the special works published on this point of practical surgery, the truth is far from having been determined in all respects. I find a new proof in the lecture which you recently delivered to the Academy of Medicine in Belgium. In that learned production on the different amputations of the limb, after having demonstrated that the greatest efforts should be made to make the amputated use their stumps in walking, you end by rejecting almost entirely *amputation above the ankle*. Is it not a rejection of this operation that you come to in the following conclusion? "Amputation above the ankle is only proper for persons aged or feeble, or those who, by their condition or social position, can easily procure a good artificial limb, and who are anxious to preserve, notwithstanding amputation, almost the normal form of the limb." Thus, notwithstanding the *greater danger to the invalid from amputation at the place of election*, you do not hesitate to prefer it to amputation at the inferior third, in the case of the young and the poor.

This is the judgment formed by Velpeau, in 1839, in his Treatise on Surgery, and which he repeated, in 1841, in his report to the Academy of Medicine upon the *mémoire* of Messrs. Arnal and Ferd. Martin. I thought that the numerous examples of the service rendered *since that period*, had led surgeons to no longer make any distinction between rich patients and

those not possessed of a fortune. I see, with regret, that it is not so; and that, as in the time of Ambrose Paré, the principles of surgery are sacrificed to the facility of making the patient walk on the peg. This advance, taken by automatic mechanism in the question of amputations of the leg, has led me, for a series of years, not to let any occasion escape which might convince me of the utility of the artificial members, for, *on the solution of this point depends the return of surgeons to the principles essentially conservative of their art.* I have thought, then, that you might receive with interest the results of my investigation in regard to such of the mutilated as have to provide the necessities of life by daily labor.

Before explaining to you the different considerations which, at least in my eyes, no longer permit us to sacrifice the most sacred interests of humanity to a question of mechanical convenience, I must make mention of the different models of artificial limbs which have been given us by our manufacturers.

In 1696 a learned Dutch surgeon, Verduin, gave to the art the model of an artificial limb. This limb (Figs. 1 and 2) was

Fig. 1.

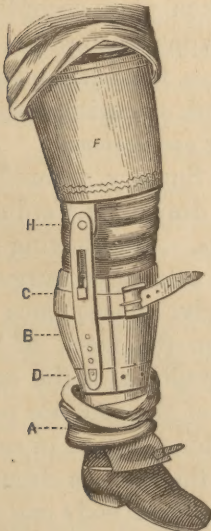


Fig. 2.

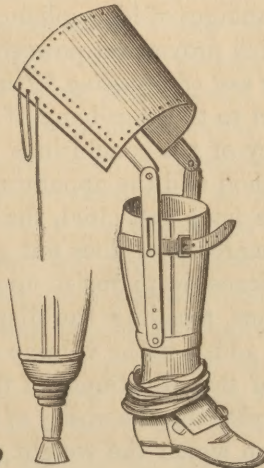
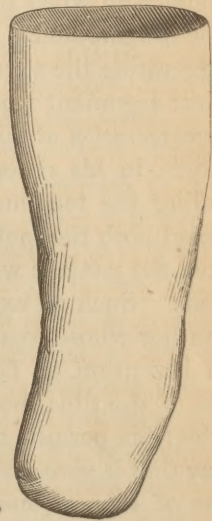


Fig. 3.



composed of a wooden foot, A, on which were fastened two pieces of steel, going up to a level with the articulation of the knee. A copper boot, B, encased the stump, and was fastened

by rivets to the side-pieces, D. A thigh-socket, F, the anterior part of which encased the small of the thigh, was articulated by a hinge-joint with the side pieces, H. A chamois stocking (Fig. 3), which enveloped the stump, and went up as far as the superior part of the thigh, was held by the thigh-socket, and kept the stump suspended. Finally, to better protect the cicatrice, a soft cushion was placed at the bottom of the metallic boot.

Verduin's apparatus depended, as is easily seen, upon the excellent principle that we must seek a point of support upon the segment of the member superior to that which has undergone amputation, instead of taking it at the condyles of the tibia and about the knee, as his fellow-countryman, Von Solingen, had done. Unfortunately, Verduin occupied himself, especially in his *mémoire*, with a question of operative surgery—the flap—and, thinking he could furnish an argument more appropriate to the method he created than to his apparatus, he said: “The advantage of having a large flap of flesh is, that *the amputated can support himself upon the stump, and even walk firmly with the aid of an artificial limb*, which cannot be done without pain when the amputation has taken place according to the old method.” As too frequently happens, Verduin, in exaggerating the advantages of his appliances, furnished matter for our argument which proves too powerful, since it *increases the exaggeration at the cost of repelling better conclusions*.

Louis, in his report to the Academy of Surgery, misunderstanding the tendency of the conclusions drawn by Verduin, rejected both the method and the apparatus. After having reported the passage we have just cited, the celebrated surgeon added: “Such an exaggeration does not give consequence to an author whose weakness is to insist upon the merit of his own invention.” Thus, recalling the disposition of the condyles of the tibia, he adds: “The volume of the superior part of the tibia permits of the adjustment of this machine in such a way that it gives, under the tuberosity of this bone, a circular point of support, upon which the weight of the body can be sustained.”

We know the power which the principle of authority had at that period. The decision made by Louis caused the abandonment of Verduin's appliance, and a return to Von Sollingen's.

All the surgeons of the eighteenth century, those of Italy and England, as well as France, with the exception of Ravaton, endeavored to make their patients walk with appliances taking their point of support around the knee. None of these, despite their varied forms, were found to answer, and even more than a century was passed in fruitless attempts.

In 1826, Professor Serre, of Montpellier, returning to Verduin's principle, proposed a new artificial limb, taking its point of support at the small of the thigh. But, as too often happens when it is desired to make an idea popular, he found it necessary to exaggerate the value of the principle, in order that it might the better be understood, preferred, and admitted.

It is known how our learned brother, Mr. Goyrand, was led to open a new era in the construction of artificial limbs, in *changing the point of support to the perinæum*. This improvement henceforth entered into automatic appliances in current practice, especially for those amputated at the inferior third of the limb.

In 1831, Mr. Goyrand (of Aix) had occasion to practise amputation *above the ankle* upon an individual affected with tubercles, whose condition was ameliorated under the influence of the operation. Shortly afterwards, three new analogous cases were presented to his observation, and the rapidity of the cure, as well as the amelioration of the accompanying injury to the foot, called the attention of that learned surgeon to the question of mechanism. His patients cured, it remained to make them walk as advantageously as possible. Mr. Goyrand rejected all the models of sockets since Ravaton. He understood that the pressure to which the stump had to submit in this sort of apparatus, could not but contort or tear open the cicatrice. Having witnessed the good result furnished by an artificial limb, worn by a young lady of Brignolles, amputated at the *place of election*, and whose apparatus had its principal point of support at the tuberosity of the ischium, Mr. Goyrand resolved to apply a similar one to his patients. The ingenious orthopedist, Mille, inventor of that artificial limb, had it quickly modified to serve for amputation above the ankle. In fact, he merely had to dispose the side-joint in such a way as to encase and hold the long stump of those so amputated. The success which crowned these attempts was so perfect that Mr. Goy-

rand's patient could, with his artificial leg, walk (so says the author) as though he had his natural ones.

* Mr. Goyrand, not willing that the result of this perfect conquest should be lost, published, in 1835, a *mémoire*, wherein he sought to give to *amputation above the ankle the place it never should have lost in surgical practice*. Then, knowing all the importance of the mechanical question, he describes and represents the form and mechanism of Mille's leg.

Mr. Goyrand did still more. Fearing that the work which he had published was not sufficient to draw the profession out of its routine, he went to Paris to awaken the interest of its masters. As the principles which he defended were in conformity with those of science, they were well received, and submitted to without delay. Mr. Velpeau—whose name is always found at the head of those who have first accepted real progress—Mr. Velpeau immediately put in practice amputation above the ankle; and then Roux, Gerdy, Blandin, Jobert, De Lamballe, and Lenoir were not slow in following him. Finally, the facts became so numerous, that the results became appreciable in statistics. Messrs. Arnal and Ferd. Martin, in a *mémoire* on amputations above the ankle, collected ninety-seven cases, and of this number eighty-seven were successes. These statistics, which furnish only a mortality of ten per cent. by *operation at the inferior third of the limb*, appeared exaggerated to Mr. Velpeau, and that learned reporter increased the mortality of this kind of amputation to about *fifteen per cent*. Admitting even this reduction, the principle of the place of election as placed by Ambrose Paré was no more acceptable, since statistics have proved that amputation at the superior part of the limb caused the loss of half of those who submitted to it; therefore, all the surgeons of the civil hospital of Paris adopted Mr. Goyrand's principle.

The different hygienic condition of the great number of provincial hospitals causes mortality, in severe operations, to be much less there than in Paris. Though some of the surgeons in charge of those establishments were not willing to take any notice of this principle, one of them, answering, a month since, my request for his observation on his own attempts in case of amputations, has not hesitated to *deny the value of progress realized, and has given me proof of the impossi-*

bility which he found of making a soldier walk who had undergone two amputations above the ankle, as well as the hard necessity of yielding to the pressing demands of the mutilated man to practise two new operations at the place of election.

Some analogous facts have led me to take up the statistical task of Mr. Arnal, and to follow his work, for the operation takes place daily in the current practice of Mr. Velpeau. This celebrated surgeon, who, in 1841, was credited with only seven operations in Mr. Arnal's table, has now reached the figure of thirty amputations, among which he counts four deaths. One of the latter should be erased from the table, for the patient was phthisical, and yielded to his tuberculous affection, and not in consequence of his operation. Mr. Nelaton cites twelve cases, all successful but one; Mr. Denonvilliers, ten cases and no deaths; Mr. Lenoir, forty-two cases, six deaths; Mr. Robert, thirteen cases, two deaths; Mr. Michon, twenty-four cases, three deaths; finally, you, yourself, who in 1841 furnished only *one single success*, can now offer *eight in eight operations*. This result proves, then, that you intend only to call in question *the services rendered by automatic appliances*.

If I here recall the figures which bear witness to the great safety of this operation, it is because a certain number of our provincial brethren *do not believe the difference to be so marked between the dangers of amputation at the place of election, and the inferior third*, for want of counting up the results. One of our colleagues of the *Société de Chirurgie*, who has for a long time been in charge of the surgical department of a hospital in an important city of the South, wrote me as follows:

"During my whole surgical experience I have practised exclusively amputation at the place of election. This was the rule—the reverse the exception. You know that, in our provinces, it is a sort of law which we all recognize; besides, the social condition of our patients, the high price of automatic appliances, their insufficiency for workmen who have to labor hard, have prevented me from amputating above the ankle. My successors have done better than I. They have practised in turn the two operations, according to the indications of the case. In amputation at the place of election they had some reverses, but in fifteen amputations at the inferior third, *they had fifteen successes*. In presence of these results and those

reported at Paris, the choice of the method cannot remain uncertain with the increasing perfection of automatic appliances. I do not doubt that you will finally bring us all to your way of seeing it.

“DOCTOR VIAL,

“Physician of the Hospital of St. Etienne.”

Another *confrère*, Mr. Busquet, surgeon of the Laval Hospital, answered my inquiry as follows: “I have undertaken nineteen amputations at the place of election, in which number there were eight deaths, my patients being all poor workmen, whose resources would not allow them to obtain high-priced limbs. I have had only two cases of amputation at the inferior third, *both of which were successful.*”

Thus, always the same results. Now let us return to our automatic appliances, since, in this question of amputation of the limb, *the accessory remains the principal.*

“Truths are wedges, to be driven to the head,” said Fontenelle. The great safety of amputation above the ankle, demonstrated daily by numerous facts announced officially at our academy, *has not been sufficient to popularize this operation.* It is not the proper moment to discuss whether it is absolutely necessary for the new appliances to take their principal point of support at the perinæum. This innovation of Mr. Goyrand has been fortunate in this,—it has drawn attention to Mille’s apparatus, obtained the confidence of surgeons, and thereby provoked new attempts, which have resulted in improving the model invented by the modest orthopedist of Aix. This appeal to the competition of other makers, has become indispensable by the death of Mille, which happened before he could be benefited by the results which a longer series of experiments might have furnished him.

The new artificial leg was not to disappear. Mille, on leaving Paris, had charged one of our most intelligent makers, Mr. Charrière, with the construction of his model. And, on the other side, one of our most distinguished surgeon-orthopedists, Mr. Ferd. Martin, yielding to the solicitations of Blandin, engaged to furnish him with an apparatus which should allow those amputated at the inferior third to walk without a peg.

The first attempts of Mr. Ferd. Martin were not successful,

and would have compromised the future of the question, had not the moment arrived when mistakes could indeed *retard*, but could not *prevent* progress. Desirous of preventing injury to the extremity of the foot in walking, Mr. Martin had the extremity of his new apparatus raised; he did not perceive that by this modification he had transformed his artificial leg *into a peg*, and changed the statical condition of the body. His patients could not then walk with a flexible knee, and the limb had to be *kept stiff* by the aid of a stop-joint.

The modification necessary to give flexibility to the knee was so simple that I am astonished that so great a mechanician as Mr. Martin remained so long without finding it out. It was merely needful to carry behind the axis the articulation of the shin and thigh-pieces. The principle stated, the means are found. Do not the springs which hold open the "capote" of our cabs, present eccentric articulations, enough to offer the greatest resistance? Fig. 6 (see cut) represents the model of Mr. Martin's; it is his first attempt, that is to say, the extremity of the foot raised, and the eccentric articulation of the shin and thigh-pieces. There is a second, without foot, designed for poor patients. It is like the others in the other points.

In the artificial leg of Mr. Charrière, as in that of Mille, (Fig. 7), the foot is preserved, and the movements of flexion and extension of the extremity of the member produced by elastic *springs*. In the model presented in 1856 to the *Société de Chirurgie*, (Fig. 8), the extension of the foot is maintained by the action of an artificial *muscle*, C, which, from the heel, A, is inserted in the posterior and inferior part of the thigh-socket, D.

These models are not the only ones which have been tried. However, not to complicate my essay, you will permit me first to give account of those trials which have been made with appliances taking their point of support at the perinæum; they are the most numerous. We shall afterwards attend to the results furnished by the use of limbs taking their point of support at the thigh. (See Plate of cuts.)

Inquiry on Artificial Limbs. Value of the Point of Support.

LETTER OF M. DEBOUT, SECRETARY OF THE SOCIÉTÉ DE CHIRURGIE, OF PARIS, TO M. MICHAUX, PROF. SURGICAL CLINIC, UNIVERSITY OF LOUVAIN.

Translated from Le Bulletin Général de Thérapeutique, January 15, 1861.

IF the sole purpose of my letter were to prove the reality of the service which artificial limbs can render to those who have undergone amputation above the ankle, I should not give you a full account of the end of my inquiry, for the facts which I have placed before you ought to have convinced you on that point. It then remains for me to take up an important part of the question, viz., the discussions of the *point of support* of the artificial limbs.

I commenced my study by the examination of such of the mutilated as had to provide their living by business, and it was found that all whom I saw made use of instruments taking their point of support at the *perinæum*. If the choice of that mode had been the result of a comparative study of the value of different points of support, viz., the knee, thigh, and perinæum, I should have nothing to add. But it is not so. The reason that our surgeons have such a predilection for the model of Mille (of Aix) is entirely theoretic. Let us hasten to add, however, that this is based upon the physiological construction of the part supplied. The lower limb is principally a sustaining member; so Mr. Goyrand has thought, reasonably, that there could not be given a too great extent to the point of support of the artificial limb, and, at the same time, a too solid base afforded the projection of the ischium. But Baglivi has said, there are two chief points in medicine,—*theory and practice*. We know the principal ideas in the construction of Mille's

model, as that was used more than two centuries ago by Verduin for the point of support at the thigh. Now let us consult experience.

When a truth has been repulsed by the very persons who ought to have comprehended its importance, it must be a long time before it is seen again to enter the domain of science. That this return does take place, must be because numerous and patent facts increase the evidence.

It is now more than a century since Louis rejected the point of support at the thigh, and no one has yet returned to it. Hardly was an attempt made by Prof. Serre, of Montpellier, in 1826. During all that time the truth had a chance to make way for itself, and the value of the point of support at the thigh was studied by those of the mutilated who could not, or found it painful to have the point of support at the perinæum.

Before speaking of facts, let us look for a moment at the different models which are in the Surgical Arsenal. I merely recite to you the first attempt of Verduin, the design of which I have given you; then come the models of Messrs. Palmer, Béchard, and Mathieu. They differ little from each other, with the exception of that of Mr. Palmer, in which the mechanism which moves the limb is most simple and ingenious. Those of Messrs. Béchard and Mathieu have, as base, two pieces of steel encased in leather, the foot being held raised by springs, as in the apparatus of Mr. Ferd. Martin. These artificial limbs possess only the principle of pegs. In the Palmer Limb, the action of the flexor spring is counterbalanced by an extensor-tendon, so that the foot aids in walking. Following are some trials, of which, for the greater part, I was a witness.

I. *Palmer Limb*.—The first person whom I saw walking with this artificial limb was Mr. Palmer, the inventor of the American Limb. The talented Philadelphian had had his leg amputated at an age when the loss of the member is less to be regretted than the ulterior consequences. Desirous of concealing his loss, he set himself to work at the construction of an artificial limb. Not content with the different models given him, and endowed with great mechanical genius, he began to look for the means of constructing an appliance which would not only conceal his loss, but enable him to walk easily. Success has crowned his efforts, for it is difficult, even when one

sees Mr. Palmer walking, to recognize that he uses an artificial limb. In 1851, on returning from the World's Exhibition, in London, I introduced the inventor to the *Société de Chirurgie*, and a good number of our colleagues could not tell which limb had been amputated. I have given you the plan of this limb. Charged with the duty of making a report on the magnificent appliance, you will permit me to reserve for *that* work the explanation of the exceedingly simple mechanism which causes the American artificial limb to move.

Here is a second example of the fine action of the artificial limb. It is furnished us by the lady of one of our brother physicians and friends of London. This case is of the greatest importance, from the fact that this lady had made use, successively, of appliances having their point of support at the perinæum, and thigh, and she does not hesitate to accord the preference to the latter, the plan of Palmer.

II. *A lady aged 47—Amputation at the middle of the limb—Use of artificial limbs since 1836—Successive trials of different models—Ferd. Martin, Mille, Palmer.*—Madame X—, from an accident caused by falling from a horse, was compelled to undergo amputation of the right limb. The operation was performed only a few inches below the place of election, although the injury was near the tibio-tarsal articulation. It was in June, 1836; the lady was then twenty-three years of age. As soon as she was able to leave her bed, an artificial leg was supplied her, made of ordinary wood, beautifully finished, but not the less the *wooden leg*, with all its inconveniences. (This appliance is fastened at the top by a band around the perinæum. When the mutilated sit down, the external piece causes a movement of torsion to the band, which painfully compresses the tissues. In a sitting posture the leg remains extended, and betrays the fact of amputation.) After using this appliance six months, the lady, knowing the experience which the physicians in our hospitals had, came to Paris, and procured an artificial leg from Mr. Ferd. Martin. She used it four years, walking with tolerable facility, the leg stiff. About this period the lady was married to one of our friends, a distinguished London physician, who, not wishing her to lose the movement of the knee, had a leg made for her, after the model of Mille, by Weiss, the Charrière of London, *i. e.*, one which flexes in walking. Ma-

dame X—— used it until 1851; still there was something wanting. Therefore, when I spoke to my friend of Mr. Palmer's invention, after my first visit to the World's Exhibition, his wife immediately became desirous of possessing an American limb.

Here is the acknowledgment which has been transmitted to me (April, 1860): "At my very first trial of Mr. Palmer's limb, I was convinced that I had found what I needed so badly. Since 1851 I have used no other appliance. I walk easily three or four miles without fatigue; I go about my house all day; finally, I have again taken up horseback exercise, and ride nearly every day. The point of support is above and below the knee, and I give this the preference over that of the appliances of Weiss, and Ferd. Martin. I have found beauty and utility united in the Palmer limb; many of my new acquaintances do not know that I have undergone amputation."

The Palmer Leg being of willow, it remains to be asked whether it can be grooved deeply enough to allow of a lodgement of the long stumps furnished by amputations above the ankle, and what modification the mechanism has to undergo, when placed in the lower part of the leg. As the inventor resides in the United States, I am forced to address myself to those who are near me to decide this question. The result of this first attempt has been most remarkable.

III. *Amputation at the inferior third of the limb—Successive employment of limbs having their point of support at the perinæum and thigh.*—Mr. M., employed at the *Bureau de Dépôts et Consignations*, was admitted, in 1843, to the St. Louis Hospital, to be treated for a white swelling at the tibio-tarsal articulation. As the disease could not be overcome by ordinary means, Mr. Jobert decided to perform amputation. The limb was taken off above the ankle. The wound having healed, the patient, then fifteen years old, made use of an artificial leg furnished by Charrière. This appliance lasted four years; and as this young man had suffered somewhat from having the point of support at the perinæum, he addressed himself to another maker, Mr. Béchard. The latter, believing that the excoriation of the tissues resulted merely from a fault in the disposition of the upper padding, constructed the new leg upon the same model. This appliance lasted the same time, and, despite the care taken for its prevention, it cut the skin of the patient.

My investigation having led me to Mr. Béchard, I engaged that maker to construct, for the patient, an artificial leg on the PALMER model. Mr. Béchard understood immediately the interest attaching to this attempt, and took the greatest care to reproduce the mechanism of the American limb. The lower socket of the limb could be hollowed out sufficiently to prevent the stump being exposed to any friction; only, Mr. Béchard made use of different mechanism to move the foot, without respecting the property of his American *confrère*.

One of the points of my investigation, the possibility of making those amputated at the lower part of the leg walk by Palmer's invention, was answered. It remained to be seen how the patient liked the change of the point of support; for the American limb, as I have said, is fastened to the thigh. Mr. M. liked the modification so well, that he has since ordered a new limb to be constructed, in which he desires the same point of support to be preserved. Thus, in sixteen years, he has made use of two models; he has tried each the same length of time, and, like the English lady, he does not hesitate to give that the preference which has the point of support at the thigh. (Palmer's.)

Translated from Le Bulletin Général de Thérapeutique, Paris, March 15th, 1862.

AN EMINENT FRENCH JUDGE RESTORED TO THE BENCH BY THE AMERICAN LEG. AMPUTATION OF BOTH LIMBS. USE OF ARTIFICIAL LIMBS. SUCCESSIVE TRIAL OF TWO POINTS OF SUPPORT. PREFERENCE GIVEN TO THE PALMER LEG.

On the 4th of March, 1856, Mr. Choiselat, *juge supléant* at St. Menehould, thirty-two years of age, was accidentally thrown upon the rails of the Eastern Railroad, in the interior of the *gaze de Meaux*; a train in motion passed over both legs, which were literally ground to powder. The injured man was carried home, and, being examined, it was agreed that a double amputation was necessary; the operation took place next day by Mr. Houzelot. Fifty days after the accident, the wounds on the stump were healed.

Mr. Choiselat at first made use of two pegs ; but, with such appliances, his *public career was at an end ; the dignity of the ermine fitted ill the mien of two wooden legs*. Mr. Houzelot remembered that the *Société de Chirurgie* has charged him with the duty of making a report on Artificial Limbs, came to me to discuss the value of the different models manufactured by our makers. Our colleagues, like all French surgeons, had a preference for appliances taking their point of support at the perinæum ; but, after listening to the facts which I had previously reported, and acquainting himself with my personal experience, Mr. Houzelot sided with me, and it was agreed that we should try upon our patient, the AMERICAN LIMB. The inventor being in America, I sent to Mr. Osborne, Mr. Palmer's representative in London, the casts of the two stumps, requesting him, when the limbs should be finished, to be kind enough to come and attend personally to their application ; he did so. Below are the acknowledgments which Mr. Houzelot has transmitted to me.

July 16th, 1856. Mr. Choiselat made use of the Palmer limbs for the first time ; notwithstanding the use of pegs for two months and a half, he soon learned the use of the new apparatus, *rapidly and easily* ; on the third day, Mr. Choiselat went down to the garden and back again to his room, leaning on an attendant's arm.

The next (fourth day), he went in a carriage to the railroad depot, took the train to Chalons-sur-Marne, and made ten leagues by post to St. Menehould. There alone, and supported by a cane, he visited some of his friends, who were astonished at the result.

September. Mr. Choiselat is passing the vacation in the country. Assisted by a cane, he walks for an hour and a half, without much fatigue

March, 1857. With the aid of a cane, he has walked three and a half miles in one hour and forty minutes.

During the whole time, the progress has been daily continued and sensible ; to-day, November, 1858, he walks easily. He wears his limbs fifteen hours successively ; in his own apartments he walks without a cane, stoops, and readily picks up objects from the floor ; he sits down and rises without aid ; he walks very easily. Mr. Choiselat asserts that he has not been

arrested in the performance of his ordinary vocation. Finally, *after such an accident, the reparation is as perfect as possible.*

This judgment applies exclusively to the AMERICAN LIMB, *which Mr. Choiselat prefers to all others, in every respect.*

“In order to gain a better understanding of the value of the point of support, Mr. Choiselat had made for him one of Mille’s limbs, modified by Xavier, an old workman of Charrière’s. This artificial limb is made, like the Palmer leg, of willow, but the thigh-socket goes up to the perinæum, and offers a point of support at the ischium. The following is the result of the comparative examination of the two appliances. The Xavier leg, although of equal weight with Palmer’s, fatigues more in walking, cramps while in a sitting position, and permits of arising less easily, as well as of entering and descending from a carriage.

“The Palmer leg is light, is easily extended by the movements of the short levers (one of the stumps is three inches from the knee-pan, the other four inches). According to Judge Choiselat, the thigh-socket, which takes its point of support above the small part of the superior segment of the limb, offers a sustaining base, equal to that of Xavier’s apparatus, which goes up to the perinæum.

“Finally, an important matter,—the Palmer limb is the one which has been used longest without being repaired.”

I have carefully noticed Judge Choiselat’s attempts every year. I have seen him frequently, and I even watched the preparation of the two new appliances. However, I have preferred to give Mr. Houzelot’s account, because, living in the same city with Mr. Choiselat, he meets him daily, and his testimony has the greater value from the fact that, before witnessing this experiment, our colleague had a great predilection for French appliances.

Such are the facts of which I have been witness.

DEBOUT.

NOTE.—The report is continued, at great length, in the Bulletin Général, from which further translations are in progress. To have received such a report from the most distinguished Society of Surgeons in Paris, is an honor of which the inventor is justly proud.

B. F. P.

PHILADELPHIA, Jan. 17th, 1865.